

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|--|--|---|
| Applicant's or agent's file reference PALBA266 | FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below. | |
| International application No. PCT/EP2005/001056 | International filing date (day/month/year) 01/02/2005 | (Earliest) Priority Date (day/month/year) 02/02/2004 |
| Applicant L&L PRODUCTS, INC. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☒ Unity of invention is lacking (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 8

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No.
T/EP2005/001056

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B32B5/18 E04C2/00 A63C5/00 B60R21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B32B E04C A63C B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | FR 2 356 509 A (PHILIPS GLOEILAMPENFABRIEKEN NV) 27 January 1978 (1978-01-27) Sandwich with foamed epoxy resin core and fibrous skin layers. page 1, line 23 - page 2, line 33 | 1-3, 5-21 |
| X | US 3 941 725 A (SCHMITTER ET AL) 2 March 1976 (1976-03-02) Sandwich with foamed epoxy resin core and metal skin layers. example 26 | 1-3, 5-21 |
| X | US 4 065 150 A (VAN AUKEN ET AL) 27 December 1977 (1977-12-27) Fibres/epoxy foam/fibres laminate for ski. column 2, line 33 - column 3, line 2 column 3, line 25 - line 40 | 4-21 |
| | -/- | |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

5 August 2005

Date of mailing of the international search report

23 SEP 2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Stinchcombe, J

INTERNATIONAL SEARCH REPORT

International Application No

CT/EP2005/001056

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 5 030 488 A (SOBOLEV ET AL) 9 July 1991 (1991-07-09) Metal/epoxy foam/metal. example II | 1-21 |
| X | ----- EP 0 047 229 A (CIBA-GEIGY AG) 10 March 1982 (1982-03-10) Fibre reinforced resin/epoxy foam/fibre reinforced resin. page 3, paragraph 2 - paragraph 4 example 4 | 4-21 |
| A | ----- US 5 849 407 A (SEIBERT ET AL) 15 December 1998 (1998-12-15) No epoxy foam. Al sheet thickness 0.5 mm. column 2, line 58 - line 65 claims 1,4 | 1-21 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2005/001056

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
1-21 (in full)

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3 (in full), 5-21(in part)

Composite comprising sandwich structure comprising at least two surface layers attached to a central layer of rigid epoxy foam with thickness at least 1.5 times the combined thickness of the surface layers and the foam of density 0.2-1.5 g/cm³. Use thereof in construction, transport or sporting goods.

2. claims: 4 (in full), 5-21 (in part)

Composite comprising at least two surface layers of thickness 0.2-10 mm and a core layer of rigid epoxy foam with thickness 2-200 mm. Use thereof in construction, transport or sporting goods.

3. claims: 22 (in full), 24-31 (in part)

Process in accordance with claim 22.

4. claims: 23 (in full), 24-31 (in part)

Process in accordance with claim 23.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

CT/EP2005/001056

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| FR 2356509 | A | 27-01-1978 | NL 7607048 A | 30-12-1977 |
| | | | DE 2726912 A1 | 29-12-1977 |
| | | | FR 2356509 A1 | 27-01-1978 |
| | | | JP 53001863 A | 10-01-1978 |
| US 3941725 | A | 02-03-1976 | CH 583264 A5 | 31-12-1976 |
| | | | AT 333045 B | 25-10-1976 |
| | | | AT 742974 A | 15-02-1976 |
| | | | BE 819922 A1 | 13-03-1975 |
| | | | CA 1030300 A1 | 25-04-1978 |
| | | | DE 2443430 A1 | 27-03-1975 |
| | | | ES 430015 A1 | 16-09-1976 |
| | | | FR 2243975 A1 | 11-04-1975 |
| | | | GB 1481232 A | 27-07-1977 |
| | | | IT 1021382 B | 30-01-1978 |
| | | | JP 1135441 C | 14-02-1983 |
| | | | JP 50076175 A | 21-06-1975 |
| | | | JP 57026530 B | 04-06-1982 |
| | | | NL 7412202 A | 18-03-1975 |
| | | | SE 398509 B | 27-12-1977 |
| | | | SE 7410410 A | 17-03-1975 |
| | | | ZA 7405854 A | 29-10-1975 |
| US 4065150 | A | 27-12-1977 | BE 850713 A1 | 25-07-1977 |
| | | | DE 2647586 A1 | 28-07-1977 |
| | | | DK 6577 A | 27-07-1977 |
| | | | FI 763173 A | 27-07-1977 |
| | | | FR 2338721 A1 | 19-08-1977 |
| | | | GB 1561435 A | 20-02-1980 |
| | | | IT 1064045 B | 18-02-1985 |
| | | | JP 52092633 A | 04-08-1977 |
| | | | NL 7612670 A | 28-07-1977 |
| | | | NO 763890 A | 27-07-1977 |
| US 5030488 | A | 09-07-1991 | CA 2003638 A1 | 23-05-1990 |
| | | | EP 0445213 A1 | 11-09-1991 |
| | | | WO 9005633 A1 | 31-05-1990 |
| | | | US 5219629 A | 15-06-1993 |
| EP 0047229 | A | 10-03-1982 | CA 1184106 A1 | 19-03-1985 |
| | | | DE 3166337 D1 | 31-10-1984 |
| | | | EP 0047229 A2 | 10-03-1982 |
| | | | ES 8206278 A1 | 16-11-1982 |
| | | | JP 57075848 A | 12-05-1982 |
| US 5849407 | A | 15-12-1998 | DE 19547672 A1 | 26-06-1997 |
| | | | AU 713135 B2 | 25-11-1999 |
| | | | AU 7642196 A | 26-06-1997 |
| | | | CA 2193455 A1 | 21-06-1997 |
| | | | EP 0780224 A2 | 25-06-1997 |
| | | | JP 9174784 A | 08-07-1997 |
| | | | NZ 299973 A | 24-09-1998 |